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ACTIVE LEARNER'S DICTIONARY OF ENGLISH FOR TECHNOLOGY

Introduction

Up to recent times the ultimate goal of teaching LSP (language for special purposes) at Polish technical universities and technical secondary schools was mastering a foreign language passively, i.e. developing the ability to read foreign-language specialized texts (Jancewicz 1994). However, the access to the European Union, intrinsically connected with the ongoing process of opening our market to foreign investors, as well as closer cooperation with foreign enterprises result in the increased demand for specialists being able to participate in international communication actively. Consequently, the primary aim of LSP courses carried out at institutions of higher education has to be communication, with the participant taking not only the recipient role but also the one of a message sender. This, in turn, creates a demand for adequate dictionaries used alongside modified course books.

With this in mind, the main purpose of this article is to answer the following question: How to improve specialized dictionaries to make them more suitable for the new needs of LSP learners. In order to provide the answer to this question, first the user profile of the dictionary in mind has to be sketched leading to the specification of a suitable dictionary type. Next, information items to be included in the dictionary require consideration of three aspects, namely with regard to syntactic, semantic and pragmatic information categories.

The basic reference throughout the paper is the *English-Polish and Polish-English Dictionary of Science and Technology* (*DoSaT*). It has to be made clear that this dictionary is not aimed at language learners, nevertheless, it is the most comprehensive as well as a very popular dictionary of English for technology available on the Polish market.

User profile

In the preparatory stage of dictionary compilation it is essential to make assumptions concerning the prospective users, their skills and qualifications as well as intended dictionary-usage situations. As regards skills and qualifications, two aspects deserve consideration, namely the level of assumed field knowledge and the fluency-level of the foreign language to be mastered (L2).

To start with field knowledge, the majority of LSP learners are students of technical universities, followed by students at technical secondary schools. A new phenomenon is teaching specialized English to practicing engineers who did not have a chance to learn it at school. Thus, the prospective users can mainly be regarded as semi-specialists continuously enriching their knowledge in the course of studies. Specialists will constitute a minor group of potential users (cf. Bergenholtz & Tarp 1995; Gajda 1978). As for foreign-language knowledge, it can be assumed that the majority of prospective dictionary users will fall in the section between false-beginners and the intermediate level.

Regarding intended usage situations, the learner's dictionary is to assist classroom activities as well as the user's independent study of language in all four language skills. It may seem strange to view a dictionary as a reference book in the case of speaking, as consulting it during a live conversation would certainly distract both the speaker and the listener. Nevertheless, in a study conducted by Tomaszczyk (1979) a surprisingly high number of subjects reported using dictionaries for speaking. Apparently, they meant consulting it when preparing in advance different kinds of speeches, oral reports, etc., which is, as Tomaszczyk noted, what language students do quite frequently. Therefore, in the design of a learner's dictionary this function cannot be disregarded. However, for the purpose of brevity the considerations presented here are limited to the role of a dictionary in the production of written texts.

Following the specification of usage situations, the dictionary type has to be commented upon, with two major issues to be clarified. First of all, the choice to be made is between a monolingual dictionary (MD) of the foreign language and a bilingual dictionary (BD). Secondly, the dictionary macrostructural arrangement of lemmata has to be discussed, with regard to the advantages and disadvantages of an alphabetical versus ideographic presentation.

As for the opposition mono- and bilingual dictionary, language methodologists present competing arguments in favour of either. A detailed discussion of controversies over a dictionary for students of foreign languages can be found in Piotrowski (1994). Here, there is no need to repeat all the arguments provided, but the conclusions concerning a productive dictionary are worthwhile. Thus, having analysed psycholinguistic as well as methodological aspects, Piotrowski (1994) claims that an MD can be used to its full advantage in L2 production only when the relevant item is already known to the user. Then

the MD serves as a confirmation of user's assumptions concerning either the word's meaning or its proper usage in a context. *If, however, the user has no idea what the L2 item should be but only has a vague notion of what meaning is to be encoded in L2, then the MD is practically useless* (Piotrowski (1994:80). As Harmer (1991) admits this is often the case with students at lower levels who do not have any alternative except to use bilingual dictionaries.

As previously assumed, the majority of the prospective dictionary users are at lower levels of English, which could lead to a conclusion that a bilingual L1-L2 dictionary presents the best choice for them. However, an extract from the main list of a typical bilingual specialized dictionary, will make it clear that it is rather unlikely that a language learner will be able to use the given lemma successfully in text production, e.g.:

osłaniać *v* shield; screen; guard; cowl
osłanianie *n* shielding; screening; guarding; cowling
~ prętów paliwowych *nukl.* canning, jacketting (*DoSaT)*

The above dictionary articles prove Piotrowski's (1994) claim according to whom most of L1-L2 dictionaries are translation dictionaries providing a list of equivalents in two languages supposed to be ready-to-use elements in text translation. Whether or not such dictionaries are a satisfactory tool in translation is an issue of its own, which, however, does not fall within the scope of this paper. Nevertheless, a number of bilingual dictionaries, and especially specialized dictionaries consist of bilingual lists of equivalents with no or very scarce other information. The problem is that a productive learner's dictionary has to inform the student of a number of aspects concerning foreign words.

To conclude, neither a purely monolingual nor a bilingual dictionary in the form of a primitive list of equivalents can fulfil the role of a productive learner's dictionary. As Piotrowski (1994:80) claims, for a learner to make full use of a productive dictionary some points of access to the L2 system are essential. Consequently, a bilingualised dictionary seems to be the solution, with the term *bilingualise* acquiring two meanings. First, it can refer to a monolingual L2 dictionary with L1 equivalents within the dictionary articles and L1- L2 glossary forming a separate dictionary component. Another way of bilingualising a dictionary can be achieved by accompanying L2 equivalents in a traditional translation L1-L2 dictionary with information categories essential for foreign language text production and a back matter component in the form of an alphabetical list of L2-L1 equivalents. If the dictionary is intended to be of help primarily in text production, the second mode has to be favoured as in comparison to the first one it drastically reduces the access-time to the information required. The categories of information essential for a specialized learner's dictionary will be specified further on.

The access to the unknown L2 words can also be achieved by means of grouping words according to their meaning. Piotrowski (1994) points to the failure of this approach in the case of general dictionaries, the main obstacle being subjective arrangement of concepts and categories. However, due to the nature of specialized terminology, which in comparison to general language is characterized by a well-developed system of logical dependencies, or at least strives at it, it seems better suited for ideographic presentation (Burkhanov 1999). In a productive dictionary the topical arrangement has some advantages over the alphabetical macrostructure. First of all, a collection of thematically related words and phrases drastically reduces the time needed for the access to required information, since in text production, one more often than not looks up words related to a particular topic. Moreover, it prompts lexical items that the dictionary user has not thought of yet, thus it serves as an activator to text production.

Another feature characteristic to the technical LSP, relevant for the choice of dictionary macrostructure, is a low level of anisomorphism, i.e. identical or nearly identical schemes of term interdependencies within one subject filed in different languages. However, as far as the access to the unknown item in L2 is concerned, the knowledge of subject field is not sufficient. Consequently, in an ideographic dictionary a kind of linguistic bridge is indispensable, e.g. in the form of an alphabetical list of at least key lexical items directing the user to the appropriate section.

To sum up, whether an alphabetic or ideographic mode is chosen, L1 seems to guarantee successful access to the required L2 lexical item in the case of text production exercised by language learners.

Dictionary information

The intended primary role of the discussed dictionary type, namely an active one, presupposes providing those information items in the articles that the learner will find useful in text production. In the introduction to the BBI dictionary its authors (Benson, Benson & Ilson 1998:ix) stress the paramount importance of syntactic information in that they say:

> *If they [students of English] wish to acquire active mastery of English [...], if they wish to be able to express themselves fluently and accurately in speech and writing, they must learn to cope with the combination of words into phrases, sentences and texts.*

Tomaszczyk (1979) expresses the same view speaking of *productive grammar* as a prerequisite for the successful use of the given item in speech or writing. In addition to the information on syntax, Chan and Taylor (2001) mention semantic and pragmatic information as necessary for successful communication in a foreign language. The above statements were expressed in

reference to an active general language dictionary. Nevertheless, the requirement for semantic, syntactic and pragmatic information being prerequisite for successful communication is, undoubtedly, equally plausible in the case of an LSP dictionary. However, the nature of specialized terminology will account for specific elements of the aforementioned information categories.

With regard to syntactic information, the learner needs first of all advice on grammar requirements. Naturally, grammar is the common part of LGP (language for general purposes) and the corresponding LSP, and in technical dictionaries intended for translators grammatical information may seem superfluous. However learners, unlike translators, cannot be expected to know the rules governing general language and consequently, in a learner's dictionary grammatical information has to be given adequate treatment. To be more specific, with regard to verbs a language learner would certainly appreciate the information on the transitivity of the given verb, the restrictions on progressive or non-progressive form, the obligatory use of passive as well as on the valency. In the case of phrasal verbs, it is necessary to indicate the place of prepositions in the sentence. With regard to nouns, the dictionary has to inform on the countablility of the noun, creation of the plural in the case of irregular nouns, and the use of preposition or specific sentence structure. As far as adjectives and adverbs are concerned, the learner needs guidance about their place in the sentence, restrictions as for forming the comparative forms, as well as the preposition or construction to follow.

The purpose of a learner's dictionary is not only to prompt the correct use of a given item, but also to enhance the learning process. Bare lexicographic indicators will certainly serve only the first purpose. The addition of exemplary, technically-oriented sentences would contribute to the fulfilment of the second task as well. Full sentences stimulate the memorization considerably better than decontextualized words or phrases. Thus an entry *składać się z* – "consist of" could be accompanied by the following sentence:

A water molecule (H_2O) consists of two hydrogen molecules (H_2) and one oxygen (O) molecule.

In addition to grammatical rules of sentence creation, the learner needs assistance with respect to lexis. It has to be stressed that in comparison to general language LSPs allow less freedom with regard to the habitual co-occurence of lexical elements. It is even claimed that the semi-fixed phrases constitute up to 80 per cent of the specialized vocabulary (Tryuk 2000). This phenomenon can be explained by the precision requirement in technical LSPs. Thus, although it is possible to say *make heat* "produkować/wydawać ciepło" and the communication aim may be achieved, a native-speaker specialist, particularly when producing a written text, will rather use the collocation *release heat* "wydzielać ciepło". It is often difficult to distinguish between a term and a collocation, and a frequent case, according to Tryuk, is a

terminological-collocational hybrid. At this place another characteristic feature of technical LSP has to be mentioned, namely the tendency to the nominalization of verbs and verb phrases. Moreover, the nominalized verb phrases tend to be regarded as terms, whereas their verbal counterparts do not acquire this status. Consequently, technical dictionaries are full of expressions like *charging a battery*, *testing of hypothesis* whereas at the same time the user is left at a loss as for forming a verb phrase with the same meaning. A language learner, unlike a native-speaker or a translator, will never be sure if the phrase formed by him on the basis of a nominal expression is correct. This problem could be solved by the introduction of adequately shaped definition-like explanations; the underlined phrases in the example below clearly show possible uses of the entry expression:

charging a battery – if a battery charges or if you charge a battery it takes in and stores electricity (LDCE)

Another important category of information to be included in a learner's dictionary is semantic information. In bilingual dictionaries meaning is explained by means of target language equivalents and in the case of technical LSP, which is considered culture independent, this form of explanation seems sufficient. However, for the purpose of LGP teaching language methodologists favour explanation in the form of L2 definitions stressing the fact that they expose the dictionary user to a greater amount of foreign language discourse and thus facilitate the language learning process. The same argument can be presented in favour of LSP teaching. Moreover, in a technical dictionary definitions may additionally convey encyclopaedic knowledge. Of course, in the case of a linguistic dictionary, this kind of information is of secondary importance, but since the majority of prospective users are students they may appreciate some amount of encyclopaedic information as well.

Defining the term's meaning and its sound presentation is, among others, the goal of terminologists. However, at this point the difference between the work of terminologists and LSP lexicographers has to be stressed. Thus, whereas terminologists strive at presenting the term in relation to others (Felber, Budin 1994), LSP lexicographers have to concentrate on a definition that, while defining the term, would provide linguistic knowledge about it. Therefore, they cannot take full advantage of the explication methods worked out by terminologists, but have to arrive at their own standards.

Synonymity is another issue to be discussed concerning semantic information. Ideally, the phenomenon of synonymity should not exists in technical LSP, where standardization and one-to-one relation among the concept and its denotation is the ultimate goal. However, in reality the pace of development in the field of technology is much faster than the process of standardization, and two names may be coined simultaneously at different research centres, e.g. in automation the term

sygnał zadający can be translated both as "input signal" and "set point" (*DoSaT*). In the case of an active dictionary, in which prescription has to be given priority over description, the lexicographer's role is first of all to present the favoured equivalent, i.e. the one recommended by standard documents or if there is no official standard available, specialists in the field and terminologists have to be consulted. In this way, the LSP lexicographers cooperate with terminologists by propagating the term favoured by them and contributing to the term's standardization. Nevertheless, it is not to say that synonymous forms should not be present in the dictionary at all. For a learner, a passive knowledge of them would certainly be useful as well, provided he is given clear advice on which of them to choose in his own text production.

The problem of synonymity does not apply to nouns only, but to other parts of speech as well. However, verbs in technical LSPs are synonymous only at the first look, as could be deduced from the following dictionary article:

wprowadzać *v* 1. introduce; bring in; insert; let in 2. incorporate *(DoSat)*

The learner may first have the impression of having a more or less free choice from among the equivalents in the list above. The explanation presented in the dictionary preface will certainly clarify this false assumption but only to some extent. Thus, the user will know that semi-colons separate near equivalents, i.e. *those which do not coincide semantically, but which come within the wider meaning of the heading (...); equivalents for different meanings of a Polish term are separated by Arabic numerals*. However, for the purpose of text production such a piece of information is of little if any use. As already stated, the technical LSP consists predominantly of collocations. Thus, what the learner needs more than a list of equivalent or semi-equivalent verbs, are whole phrases such as e.g. *wprowadzać dane* "insert data". The unit *insert* was not included among the English equivalents of *wprowadzać,* which also supports thesis of the paramount importance of collocational information in specialized dictionaries, rather than providing L2 verbal equivalents.

The last information category to be discussed is pragmatic information and the short discussion shall start with the problem of homonyms. Actually, deciding on different senses of a homonym seems to fall under the category of semantic information. However, since homonyms are rare in one technical discipline, whereas on the other hand, homonymous forms are often encountered in different disciplines, this has been classified as pragmatic information. To give an example the Polish term *induktor* is translated as "coil" in electrical engineering and "inductor" in chemistry. Consequently, unlike the dictionary which covers vocabulary of only one discipline, homonyms have to be accompanied by field labels, indicating the usage situation of the given equivalent, thus providing pragmatic information.

The requirement for pragmatic information is not limited to the problem of homonyms, it evokes the issue of style as well, although this problem may seem non-existent for a technical dictionary. In fact, technical LSP is usually characterized by a formal style. However, informal talks among specialists involve the usage of jargon expressions. What is more, the jargon is also entering the written mode, as nowadays the written communication cannot be limited to formal letters and conference brochures. The common usage of the Internet, and especially e-mail service has resulted in a new type of written texts, namely e-mail notices, with their own characteristics. These written messages allow some degree of informal, professional jargon. Consequently, it would be advisable to include the jargon units in an active dictionary as well, especially if their usage is widespread among specialists. Naturally, their inclusion in the dictionary, necessitates the use of lexicographic indicators identifying their status, so that the learner is aware of the possible usage situations.

Conclusions

To conclude, new market requirements evoke new demands on lexicographers. Technical LSP can no longer be viewed as an object of solely terminological research. It deserves sound presentation in learner's dictionaries as well, where it is considered as a means of communication.

Taking into consideration the skills, qualifications and needs of LSP learners, a bilingualised dictionary has been suggested as the best lexicographic reference work. However, its content cannot be limited to a glossary-like list of equivalents in the two languages involved, but has to present a number of information items enhancing the process of language learning, with a special focus on text production. As regards syntactic information, in order to create a coherent piece of discourse both grammatical and lexical collocations deserve adequate presentation. This can be done by means of a number of lexicographic devices, among which definitions take an important place. Definitions, being first of all the source of semantic information, can simultaneously convey both linguistic and encyclopaedic knowledge. Moreover, new forms of communication among specialists such as e-mail messages, necessitate the inclusion of jargon expressions also in LSP dictionaries. This, in turn, entails additional labels prompting the usage situation of the given lemma.

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